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التوثيق الالكتروني والميكروفيلم

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جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

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بالرسالة صفحات لم ترد بالاصل

MANSOURA UNIVERSITY
FACULTY OF ENGINEERING
DEPARTMENT OF ELECTRONIC
AND COMMUNICATIONS ENGINEERING

Performance of Optical Receiver Using Avalanche Diodes

A Thesis

Submitted in partial Fulfillment for the Degree of

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In

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By

Eng.

Hisham M. Sheleel Ali

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PERFORMANCE OF OPTICAL RECEIVER USING AVALANCHE DIODES

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List of Symbols

B	electrical bandwidth (post detection)
c	velocity of light
D_n	electron diffusion coefficient
D_p	hole diffusion coefficient
e	magnitude of the electron charge
ξ	electric field
E_{ie}	electron ionization energy
E_{ih}	hole ionization energy
E_g	bandgap energy
h	normalized Planck's constant
k_B	boltzmann constant
L_n	diffusion length for electrons
L_p	diffusion length for holes
n	electron concentration in the conduction band
n_i	intrinsic electron concentration in the conduction band
$N_c(E)$	effective density of states in the conduction band
$N_v(E)$	effective density of states in the valence band
R_L	load resistance
SNR	signal to noise ratio
ν	velocity of the electron
V_{bi}	built-in voltage
V_r (V_f)	reverse (forward) bias voltage in a diode
W_n (W_p)	depletion region edge on the n-side (p-side) of a p-n junction
W	depletion region width
α_{imp}	impact ionization coefficient for electrons
β_{imp}	impact ionization coefficient for holes
ε_o	free space permittivity
μ_n (μ_p)	electron (hole) mobility
λ_c	cutoff wavelength of a detector
η_Q	quantum efficiency of a detector

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